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Reproductions of Prints, Drawings and Paintings of Interest in the History of Physics 14B. Paintings of Lectures at the Royal Institution: A Friday Evening Discourse on Liquid Hydrogen by Sir James Dewar, 1904

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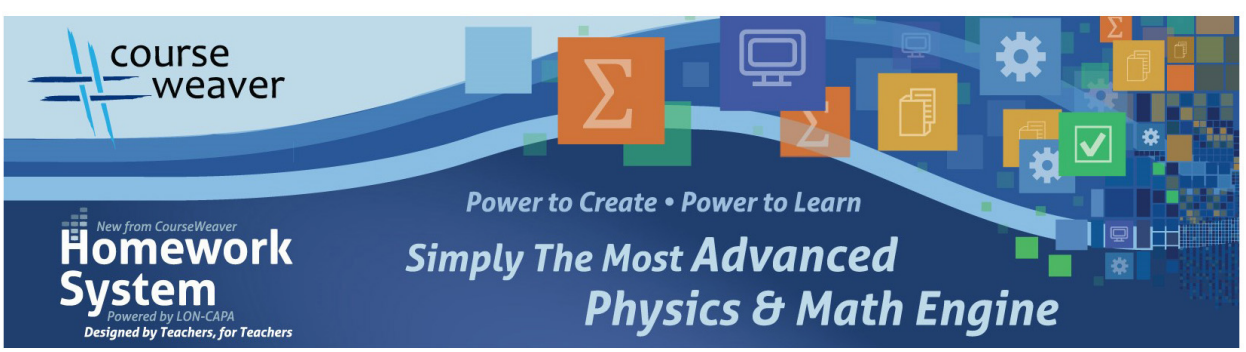

paratus is quickly assembled for demonstrating, illustrating and studying all the fundamental principles of current electricity, from theoretical to commercial viewpoints." Thus, with seven-or-more-in-one apparatus on our lecture tables and evacuated machine shops in our laboratories, it seems most appropriate that we have a ten-in-one physicist in our distinguished group of Oersted medalists. We should like to lay part claim to the professional career of PROFESSOR MILLIKAN for purposes of demonstration; since, in the jargon of the apparatus catalog, by interchanging and substituting his contributions, and adding his accessory activities and traits, we may quickly assemble this career for demonstrating and illustrating to younger physics teachers the selection principles employed in choosing an Oersted medalist.

Presentation of Award by Professor Richard M. Sutton

The foregoing citation, delivered by a former student of DOCTOR MILLIKAN's, and a collaborator with him in the revision of two of his textbooks, is an objective statement of great accomplishments by a man whom we learned to love and respect as "The Chief" during our graduate days at the California Institute of Technology. Since DOCTOR MILLIKAN has found it impossible because of many duties to be present, he is represented at this ceremony by DR. CARL D. ANDERSON, also a former student, both as an undergraduate and a graduate, at the California Institute of Technology, and now a member of the faculty of that institution. He is one who in recent years has followed in the steps of his chief even to the extent of bringing to America another Nobel prize in physics.

On behalf of the American Association of Physics Teachers, I have the privilege of handing to DOCTOR ANDERSON this medal, named after HANS CHRISTIAN OERSTED, a great teacher and a great investigator, and this certificate of award, begging that he will convey them with expressions of our sincere respect and best wishes to DOCTOR MILLIKAN, whom we regard highly for his tireless efforts on behalf of science, his signal contributions to human knowledge, his stimulating influence as a teacher and enthusiast, and his sterling qualities as a leader and friend.

Reproductions of Prints, Drawings and Paintings of Interest in the History of Physics

14B. Paintings of Lectures at the Royal Institution: A Friday Evening Discourse on Liquid Hydrogen by Sir James Dewar, 1904

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IN addition to the Christmas Lectures at the Royal Institution, two other courses are regularly offered, the Afternoon Lectures and the Friday Evening Discourses. The latter, which are justly famous, are given at 9 o'clock each Friday evening from November until June. At that time a discourse "is delivered by some recognized authority, either upon some novel discovery, some recent development of scientific speculation, or some fresh aspect of a social, literary, artistic or scientific problem. These lectures are illustrated, so far as the subject permits, by experiments, diagrams and lantern slides. Interesting and sometimes unique exhibits, illustrative of some subject of current discussion, are arranged in the library, which is at the disposal of Members and their guests for social and conversational purposes both before and after the lectures."[1] As SILVANUS P. THOMPSON says in his biography of FARADAY,[2]

> The Friday night gathering is always a brilliant one. From the *salons* of society, from the world of politics and diplomacy, as well as from the ranks of the learned professions and of the fine arts, men and women assemble to listen to the exposition of the latest discoveries or the

[1] *Record of the Royal Institution of Great Britain.*
[2] *Michael Faraday, His life and work* (Cassell, 1901), pp. 38–39.

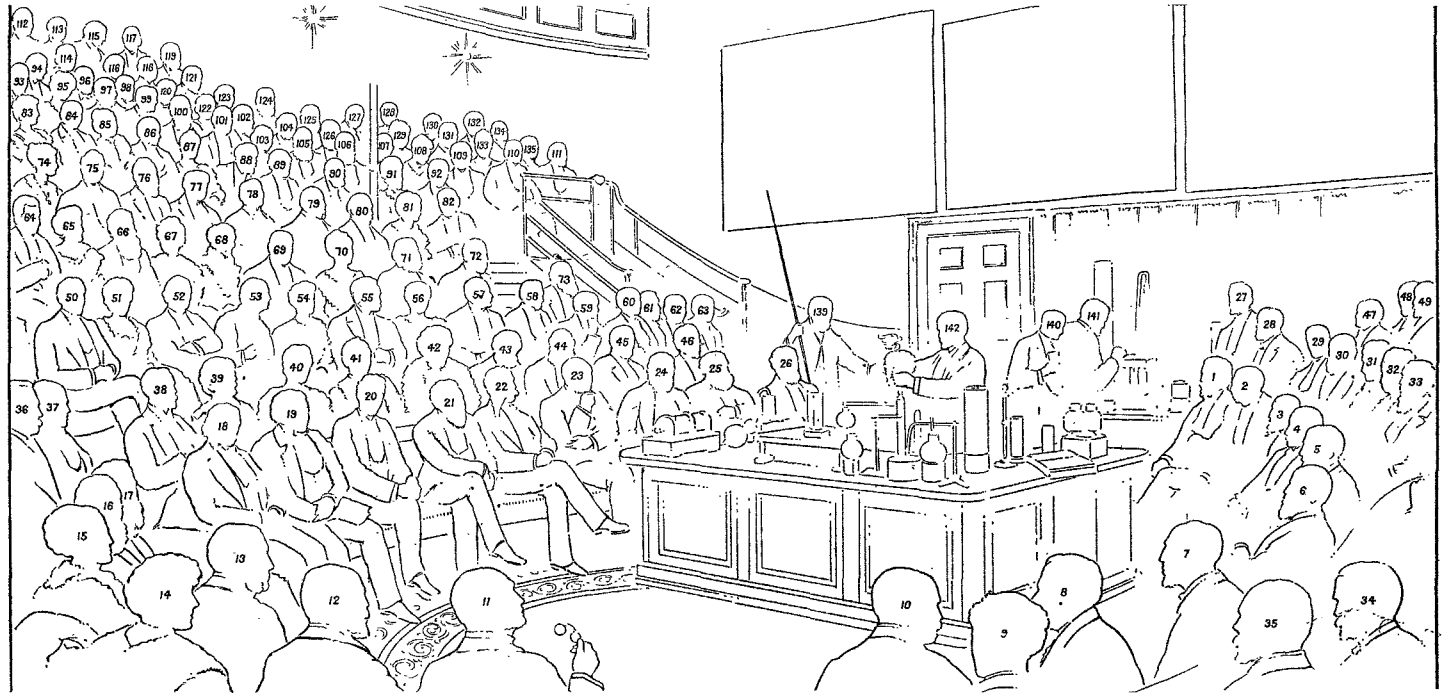

PLATE 2. KEY TO PLATE 1.

1 Sir David Salamons.
2 Sir Francis Galton.
3 Robert Mond.
4 Dr. J. Mitchell Bruce.
5 Maures Horner.
6 Sir Arthur Church.
7 Dr. Rudolph Messel.
8 W. B. Gibbs.
10 Arthur Rigg.
11 Sir James Stirling.
12 Sir J. Wolfe Barry.
13 The Duke of Northumberland, *President*.
14 Lady Rayleigh.
15 Lady Kelvin.
16 Lord Kelvin.
17 Sir William Huggins.
18 Lord Lister.
19 Sir Frederick Bramwell.
20 A. J. Balfour.
21 Sir William Crookes, *Secretary*.
22 Sir James Crichton Browne, *Treasurer*.
23 Lord Rayleigh.
24 George Matthey.
25 Dr. Ludwig Mond.
26 Sir Oliver Lodge.
27 Earl Cathcart.
28 J. B. Broun-Morison.
29 Commendatore G. Marconi.
30 Sir Hugh Bell.
31 Lady Huggins.
32 Mrs. Henry Pollock.
33 Sir John Aird.
33A Dr. E. Divers.
34 C. Vernon Boys.
35 Dr. J. Dundas Grant.
36 Sir Benjamin Baker.
37 Earl of Halsbury.
38 Sir George Darwin.
39 Lady Priestley.
40 Mrs. Ludwig Mond.
41 Lady Crookes.
42 Lady Dewar.
43 Lord Avebury.
44 Sir Andrew Noble.
45 Sir William Farrer.
46 Sir Felix Semon.
47 George Willoughby.
48 Francis Fox.
49 J. J. Vezey.
50 Edward Pollock.
51 Mrs. Edward Pollock.
52 Lord Alverstone.
53 Sir Alfred Kempe.
54 Lady Kempe.
55 Alexander Siemens.
56 Mrs. Alexander Siemens.
57 Lord Blyth.
58 Sir Edward Fry.
59 Lord Sanderson.
60 Dr. Donald W. C. Hood.
61 J. H. Balfour Browne.
63 C. Scott Dickson.
64 A. C. Ionides.
65 Mrs. Ionides.
66 Sir Joseph Wilson Swan.
67 Lady Swan.
68 Mrs. McClean.
69 F. McClean.
70 Mrs. Goschen.
71 Professor William Odling.
72 Dr. Thomas Buzzard.
73 Sir Alexander Binnie.
74 Mrs. West.
75 Dr. Samuel West.
76 Sir Philip Magnus.
77 Sir Francis Laking.
78 C. A. Parsons.
79 Sir William Preece.
80 Dr. Charles Beevor.
81 Mrs. Beevor.
82 S. F. Beevor.
83 Mrs. Dundas Grant.
84 W. R. Pidgeon.
85 Mrs. Pidgeon.
86 F. Clowes.
87 Mrs. Macnaught.
88 Sir J. Mackenzie Davidson.
89 Dr. W. J. Russell.
90 W. Hugh Spottiswoode.
91 Mrs. Palmer Thomas.
92 R. Palmer Thomas.
93 Shelford Bidwell.
94 P. F. Frankland.
95 Miss Meadows White.
97 J. D. Everett.
99 W. W. de la Rue.
100 Dr. G. Johnston Stoney.
101 Sir J. Fletcher Moulton.
102 George Herbert.
103 R. Meldola.
104 Sir William Abney.
105 Rosser Dean.
106 Lord Amherst.
108 Lady Cunynghame.
109 Sir Henry Cunynghame.
110 Sir Owen Roberts.
111 Sir William White.
112 Sir Frederick Pollock.
114 A. A. Campbell Swinton.
115 Dr. Woodhouse Braine.
116 C. Langdon Davies.
117 W. Adams Frost.
118 Roger Wallace.
121 Wilson Noble.
123 Miss Western.
125 The Earl of Rosse.
126 F. Lys Smith.
127 A. Henry Savage Landor.
128 H. Baldwin.
129 Mrs. Frank Lawson.
131 G. F. Chambers.
132 Charles Hawksley.
134 Sir Arthur Rücker.
135 Sir Alexander Mackenzie.
139 Richard Fowler.
140 J. W. Heath.
141 R. N. Lennox.
142 Professor Sir James Dewar.

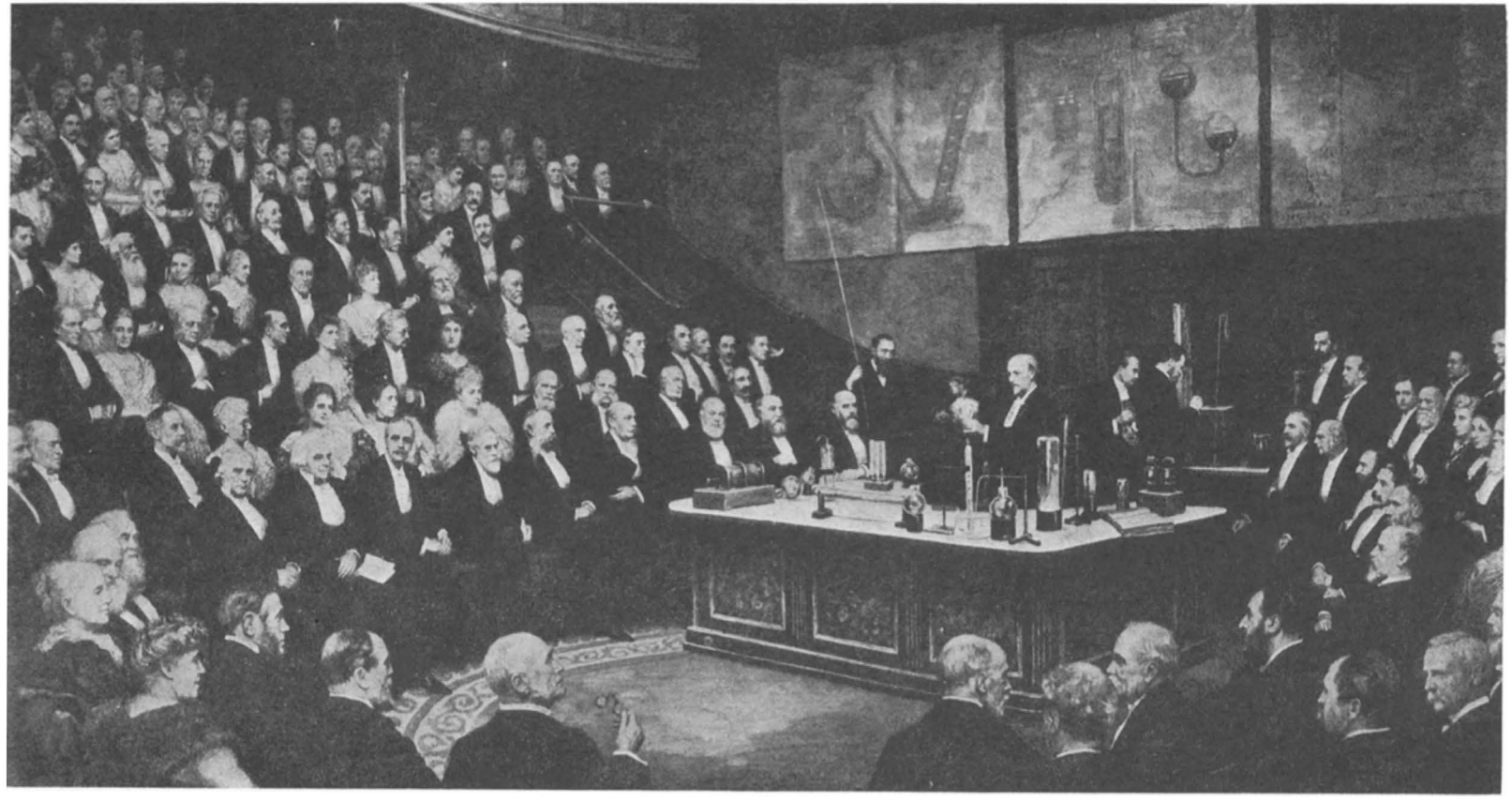

PLATE 1. SIR JAMES DEWAR LECTURING ON LIQUID HYDROGEN AT THE ROYAL INSTITUTION, 1904.
(From the painting by H. Jamyn Brooks which hangs in the rooms of the Royal Institution.)

> newest advances in philosophy by the men who have made them. . . . No fee is paid to the lecturer, save a contribution towards expenses if applied for, and it is considered to be a distinct honour to be invited to give such a discourse. . . . Not infrequently, the person invited . . . will begin his preparations five or six months beforehand. . . . A mere enumeration of the eminent men who have thus given their time and labours to the Royal Institution would fill many pages. It is little cause for wonder then that the lecture-theatre at Albemarle Street is crowded week after week in the pursuit of science under conditions like these; or that every lecturer is spurred on by the spirit of the place to do his subject the utmost justice by the manner in which he handles it. There are no lectures so famous, in the best sense of the word so popular, certainly none sustained at so high a level, as the lectures of the Royal Institution.

One of the most noteworthy of these Friday Evening Discourses was that given by SIR JAMES DEWAR (1842–1923) in 1904 on liquid hydrogen. The scene was painted by H. JAMYN BROOKS, and the painting now hangs in the rooms of the Royal Institution. It is reproduced in Plate 1 and affords excellent likenesses of a number of the most famous men of science of the period, such as KELVIN, HUGGINS, CROOKES, RAYLEIGH, LODGE and many others. A key to the 142 figures portrayed is provided in Plate 2.

PROFESSOR H. E. ARMSTRONG has recorded[3] that DEWAR

> was often an incoherent lecturer, yet his lectures were the most masterly and fascinating displays ever witnessed. He set a standard which has made the Royal Institution table remarkable throughout the world. Faraday was celebrated for the simplicity of his style—Dewar is to be thought of on account of the daring of his displays, the remarkable refinement and oppositeness of his demonstrations, all most carefully arranged and rehearsed in advance. He was a great scientific actor, playing plays with the most thrilling of plots and entirely original special scenery for each performance. His manner, his "brogue," even his impatience, gave a peculiar charm to the impression he produced; but you did well to have been behind the scenes if you wished to gather the full meaning of his message. His demonstrations were unique in character; few realize the infinite, loving care he devoted to their preparation. In their simplicity they were often profound. I can never forget the impression I received when I first saw him burn diamond under liquid air—the gradual accretion of the carbon dioxide snow-shower and the blueing of the fluid by ozone, also demonstrated by the iodine test; then the rapid uprush of the mercury in a barometer-tube full of air when the tube was cooled with liquid hydrogen; it all but knocked the top off; or again, the production of ozone at the surface of solid oxygen by the impact of ultra-violet radiations. At such moments—and there were many such—the heart beat with joy at the significance of his feats of inspiration.

[3] Nature 111, 472 (1923).

Meetings of Association Chapters

WESTERN PENNSYLVANIA AND ENVIRONS

FIFTY-FOUR members were present at the annual fall meeting of the Association of Physics Teachers of Western Pennsylvania and Environs, held at the Carnegie Institute of Technology on November 9, 1940. Seven papers were presented.

COLORADO-WYOMING

THE Colorado-Wyoming Chapter of the American Association of Physics Teachers held its annual meeting at Laramie, Wyoming on October 18, 1940, in conjunction with the Physics Section of the Colorado-Wyoming Academy of Science. The following officers were elected for 1941: Louis R. Weber, Colorado State College, *President;* Malcolm C. Hylan, University of Colorado, *Secretary-Treasurer.* W. B. Pietenpol, University of Colorado, represents the chapter on the executive committee of the Association.

CHICAGO

The annual meeting of the Chicago Association of Physics Teachers was held at Lake Forest College on October 20, 1940. The president of the chapter, Roscoe E. Harris, presided. Nineteen members were present. The meeting was devoted to an informal discussion of what physics departments of colleges and universities might do to aid in national defense. It seemed to be the consensus of opinion that institutions should not offer special defense courses unless requested to do so by military or naval authorities. After the meeting Professor and Mrs. Harris entertained the members and their wives at a tea.

Officers were elected for 1941 as follows: Glenn W. Warner, Wilson Junior College, *President;* Walter E. Peterson, Herzl Junior College, *Vice President;* M. Alden Countryman, Lewis Institute, *Secretary.* The President represents the chapter on the executive committee of the American Association of Physics Teachers.